

Message

From: Cummings, James [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=5BB042E58D12457BA91A8DC551F44BA9-JCUMMING]
Sent: 1/25/2018 10:42:50 PM
To: Davis, Eva [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d2bb073c80be4f5482e94ffe2031042b-Davis, Eva]
Subject: RE: RAO's for STAR Pitt Consol project

Ex. 5 Deliberative Process (DP)

Jim Cummings
Technology Assessment Branch
703-603-7197(O)
703-603-9135(Fax0)

From: Davis, Eva
Sent: Thursday, January 25, 2018 5:02 PM
To: Cummings, James
Subject: RE: RAO's for STAR Pitt Consol project

Ex. 5 Deliberative Process (DP)

-----Original Message-----

From: Cummings, James
Sent: Thursday, January 25, 2018 11:01 AM
To: Davis, Eva <Davis.Eva@epa.gov>
Subject: RE: RAO's for STAR Pitt Consol project

Ex. 5 Deliberative Process (DP)

Jim Cummings
Technology Assessment Branch
703-603-7197(O)
703-603-9135(Fax0)

From: Davis, Eva
Sent: Thursday, January 25, 2018 11:43 AM
To: Cummings, James
Subject: RE: RAO's for STAR Pitt Consol project

I'll be in Friday am if you want to discuss.

In my mind, it's not just the RAOs, but what they are actually accomplishing with STAR that is important. SRSNE is a good example - we gave them very lenient clean up goals (removal of NAPL) to get them to go

forward, but the TCH results far exceeded this goal, and now groundwater concentrations look very favorable (last data that I saw). Which is why I am curious about what they are achieving at Pitt Consol - are they exceeding their cleanup goal or just barely making it? Not at all clear from their email.

Kathy's email mentions the other technologies included in the alternative, but I'm under the impression that the other technologies are for other portions of the site, not follow in the area where STAR is to be used, but need to check the FS on that matter.

These 'war wounds' that we have from previous pilot efforts are why I tried to push for getting greater EPA involvement and input earlier on in developing the plans for both the bench scale and the pilot scale - not sure that I was successful for the bench scale plan.

-----Original Message-----

From: Cummings, James
Sent: Thursday, January 25, 2018 10:28 AM
To: Davis, Eva <Davis.Eva@epa.gov>
Subject: RE: RAO's for STAR Pitt Consol project

I almost called you yesterday to discuss.

At Pitt Consol the original objective is/was to chase/address the 6" seams of coal tar. Distilling down what for me was a rather convoluted RAO description provided by the Geosyntec folks, their bottom line is that Pitt Consol is a free product effort.

At sites with mostly seams, STAR may be able to achieve low numbers. At sites with with non-trivial, but non weapons grade contamination throughout the soil column, consideration of STAR may require thoughtful analysis if there are stringent cleanup objectives. One CSM floating around is that Quendall is mostly seams. I would like to see the analysis that supports that world view.

Coal tar poses some 'interesting' risk features and factors because it is mostly/only naphthalene that drives the exposure risk. At a former MGP in Racine, Wisc. the state allowed the utility to put down 10-20 feet of clean fill and a developer to build high end condos. The price of the condos was actually increased because the view was improved. There is more to the story, but the depiction is fairly accurate.

A useful discussion would be to discuss likely STAR outcomes as over against expectations. Hence my plea for clarity re RAOs.

I will be in on Fri if a disc might be of interest.

P.S. If we were smarter, one in situ thermal pilot in R 10 might have been enough.

Jim Cummings
Technology Assessment Branch
703-603-7197(O)
703-603-9135(FaxO)

From: Davis, Eva
Sent: Thursday, January 25, 2018 10:46 AM
To: Cummings, James; Cerise, Kathy
Cc: Susan Moore; Fuentes, Rene; Cole, Jason/BOS
Subject: RE: RAO's for STAR Pitt Consol project

Can't argue with your points about pilot studies - we are hopefully avoiding the 'do it ourselves' problems of the Wyckoff pilot by having the vendor of STAR involved up front (if Hill can get them under contract, which it seems they may be having some trouble with?). Hopefully a better 'cast of characters' going into this pilot.

I am concerned about your comment: Like SEE, STAR is a powerful/big hammer technology but probably not suitable as a stand-alone exquisite numbers tool if this is not a stand alone technology to get this site to residential soil standards, then maybe the RA pushing for this pilot needs to also be aware of that. As I said previously, it might be very helpful to see what they are achieving with STAR at the Pitt consol project.

From: Cummings, James
Sent: Wednesday, January 24, 2018 2:39 PM
To: Cerise, Kathy <Cerise.Kathryn@epa.gov>
Cc: Susan Moore <Susan.Moore@CH2M.com>; Fuentes, Rene <fuentes.rene@epa.gov>; Cole, Jason/BOS <Jason.Cole@CH2M.com>; Davis, Eva <Davis.Eva@epa.gov>
Subject: RE: RAO's for STAR Pitt Consol project

An unfortunate fact is that Pilot Studies can do things for you and to you. You certainly do not want the pilot to become a/the critical path item in a site w/ redevelopment aspirations.

Using the wayward Wyckoff Steam Enhanced Extraction pilot as an example, the following discusses 2 of the main the reasons why pilot studies, as often as not, do not provide answers with the desired or necessary clarity.

1) Failure to establish clear measures of success

Wyckoff provides a perverse example. The panel of experts convened to provide support were convinced that an appropriate measure of success for the SEE pilot was Baker tanks of creosote leaving the site/island. The then RPM insisted that the objective of the pilot was achievement of the Marine Water Quality Discharge Standards. The current framework at Wyckoff envisions a remedial suite that includes MNA as a component.

The RAO discussion for the Pitt Consol site shared previously provides some, but probably not definitive guidance regarding RAOs for the Quendall STAR Pilot

Clarity regarding expectations, helps immensely in scoping and budgeting for the pilot

2) Budget limitations that prevent adequate characterization, scope, duration, and/or instrumentation. An ancillary often overlooked factor is contingency funding if conditions are not fully as described or things don't go exactly as planned.

At Wyckoff, the bids for the pilot were X2 the IGCE. Efforts to 'do it ourselves' (i.e., USACOE) were problematic. When naphthalene crystallized out all over the above ground internals, there was insufficient funding or will to regroup and resume.

Bottom Lines:

- Reasonable and reasonably clear expectations taking into consideration anticipated land use, and technology capabilities. Like SEE, STAR is a powerful/big hammer technology but probably not suitable as a stand-alone exquisite numbers tool
- Robust design should drive the budget rather than trying to live with a budget-constrained pilot. That does not mean a blank check. If budget constraints cannot be overcome, there should be clear understanding of the associated risks.

From: Davis, Eva
Sent: Wednesday, January 24, 2018 11:35 AM
To: Cummings, James <Cummings.James@epa.gov>; Cerise, Kathy <Cerise.Kathryn@epa.gov>
Cc: Susan Moore <Susan.Moore@CH2M.com>; Fuentes, Rene <fuentes.rene@epa.gov>; Cole, Jason/BOS <Jason.Cole@CH2M.com>
Subject: RE: RAO's for STAR Pitt Consol project

Soil cleanup goals for residential reuse are usually much stricter than removal of free product, and as I recall the soil cleanup criteria for Wyckoff, since it was on Puget Sound, they were even more strict. The bench scale research done with this technology I believe indicated that it could accomplish more than just free product removal. It would be very interesting to see their 40 ROCV reports that they have submitted so far - however, if that NAPL and the hydrogeologic setting are not the same as or similar to Quendall, it is still a stretch to assume the same results will be obtained at Quendall. But they would still be very interesting to see.

From: Cummings, James
Sent: Wednesday, January 24, 2018 8:10 AM
To: Cerise, Kathy <Cerise.Kathryn@epa.gov>; Davis, Eva <Davis.Eva@epa.gov>
Cc: Susan Moore <Susan.Moore@CH2M.com>; Fuentes, Rene <fuentes.rene@epa.gov>; Cole, Jason/BOS <Jason.Cole@CH2M.com>
Subject: FW: RAO's for STAR Pitt Consol project

Per my previous, I attempted to get a sense of the Remedial Action Objectives (RAOs) for the STAR project at the DuPont Pitt Consol NJ facility. This is what the Geosyntec folks provided.

May be of some use for Quendall, however as noted, this is a free-product-focused effort. I don't know whether redevelopment is an objective and if so, what the eventual use may be. The area is highly industrialized. I will ask in a follow-on discussion.

From: Marlaina Auger [mailto:MAuger@Geosyntec.com]
Sent: Tuesday, January 23, 2018 10:38 PM
To: Cummings, James <Cummings.James@epa.gov>
Cc: Gavin Grant <ggrant@savronsolutions.com>
Subject: FW: RAO's

Hi Jim,

Happy to help answer your questions. And pleasure to "meet" you, albeit in the world of email.

As Gavin said, I am the project manager for Geosyntec for the Pitt-Consol site and we have actively been working through both remediation, and measurements of success of that remediation (remedy verification), as we proceed. We have developed a robust and repeatable methodology to remedy verification, which, specific to New Jersey requirements for remediation, is the treatment of free product. Our approach to remedy verification is based on the NJDEP Technical Guidance for Site Investigation of Soil, Remedial Investigation of Soil, and Remedial Action Verification Sampling for Soil (NJDEP, 2015) for in situ technologies and for determination of free product as defined in the N.J.A.C 7:26E Technical Requirements for Site Remediation (N.J.A.C 7:26E-1.8) and NJDEP Site Remediation Program: Protocol for Addressing Extractable Petroleum Hydrocarbons Version 5.0 August 9, 2010 (NJDEP, 2010). Multiple line of evidence are used to assess the presence of free product, as documented in US EPA's Ground Water Issue newsletter entitled Assessment and Delineation of DNAPL Source Zones at Hazardous Waste Sites (Kueper and Davies, 2009). As you may know, Pit-Consol is a 37-acre parcel with about a third of that requiring treatment for free product. On this basis and the client's timeframe for remediation, it has been important for us to assess success as we progress through STAR operations.

One item to clarify before I continue: I believe when you ask about RAO's, you are inquiring into Remedial Action Objectives - is that correct? I ask for clarification because in NJDEP the term RAO has a very specific reference, and that is to a "Response Action Outcome". A RAO (N.J.A.C 7:26C-1.3 and 6.2) in NJDEP is issued when remediation has been completed in accordance with all applicable regulations and guidance and the remedial action undertaken is protective of public health, safety, and the environment. We are seeking a RAO for the Pitt-Consol site, following the completion of free product treatment and other protective measures such as construction of a cap and engineering and institutional controls. All that said, I do believe your question is focused towards the more typical use of the term, RAO, that being Remedial Action Objectives. We would also note that the NJDEP has a LSRP program and under this program a licensed state professional can be retained. This site has been opted into the LSRP program and as such the remediation of the site is under the guidance of the LSRP.

The objectives for STAR at Pitt-Consol is the remediation of free product. On this basis, we developed a methodology that we call remedial operations and compliance verification (ROCV). This methodology looks at both how well operations performed and post-treatment characterization. Assessment of STAR operations includes a review and evaluation of process monitoring data. This includes air injection flow rates, interstitial thermocouple (ITC) results, duration of the STAR treatment cycle, and the mass destruction rate and cumulative mass destroyed over the course of STAR operations. Post-treatment characterization assesses whether we have met the objectives for the STAR application (free product treatment) - i.e., effectiveness monitoring.

Free product is evaluated through a multiple lines of evidence approach, utilizing field screening techniques (soil core PID and visual observations, and TargOST) and analytical assessment (NJDEP screening criteria for extractable petroleum hydrocarbon [EPH] compounds). The spatial assessment of post-treatment verification sampling is performed in accordance with NJDEP guidance for evaluating in situ technologies. More specifically, this means we evaluate the performance of STAR on a basis of one location per 900 square feet in the x-y plane. With depth, the performance of STAR is assessed for every 2-foot interval of previously impacted material. To clarify this last point, using pre-treatment data we establish the depth interval and thickness of our target treatment zone and use that information to define the interval and thickness of our post-treatment characterization.

The ROCV process in place has shown STAR to be a successful remedial technology. Through 2017, we have completed more than 40 ROCV reports documenting the results of implementing STAR and the associated verification process.

The above information is an attempted 'brief' summary, but happy to discuss more with you and hear what questions you have.

Regards,

Marlaina Auger

519.515.0841

-----Original Message-----

From: Gavin Grant
Sent: Monday, January 22, 2018 8:21 AM
To: Cummings, James <Cummings.James@epa.govmailto:Cummings.James@epa.gov>
Cc: Marlaina Auger <MAuger@Geosyntec.commailto:MAuger@Geosyntec.com>
Subject: RE: RAO's

Jim,

I've cc'd Marlaina Auger who is the project manager for Geosyntec on the Pitt Consol project. She understands this stuff better than anyone so I've asked her to help answer your question. Can I assume this has been prompted by Quendall?

Regards,

Gavin

-----Original Message-----

From: Cummings, James [mailto:Cummings.James@epa.gov]
Sent: Thursday, January 18, 2018 9:28 AM
To: Gavin Grant <ggrant@savronsolutions.commailto:ggrant@savronsolutions.com>
Subject: RAO's

Happy New Year.

Realized that I never got a handle on RAO's for Pitt Consol or any other STAR application where 'success' measures were specified. Might such information be available?

This is not an idle inquiry.

Thnks.

Jim Cummings

Technology Assessment Branch

703-603-7197(O)

703-603-9135(Fax)